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USG-guided excision biopsy in case of ambiguous breast USG images

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Summary

In 2003-2006 1068 excision biopsies (USG-, MGR- guided anchor biopsies) were performed in OCCD. In 182 patients (17%), USG-guided biopsies were performed.

The youngest patient was 22 years old, the oldest 84, the mean age in the group was 53 years. The group consisted of 77 premenopausal patients (42%) and 105 (58%) postmenopausal ones. The family histories of 32 patients (17.5%) were positive. 169 (93%) had undergone mammography, including 115, for whom it was the first examination of that type in their life. The lesions were located most frequently in the upper lateral quadrant of the mammary gland (89 patients – 49%). In 5 patients, the lesions were of multifocal character. In 29 (16%), MGR revealed microcalcifications.

All the patients underwent USG of the breasts. In 122 (68.5%), the lesions visualized by USG were hypoechogenic. Only in 4 (2%), the lesions revealed by USG were suspicious of cancer. The mean lesion size was 13 mm (range 4–60 mm). All the patients underwent surgical treatment. Partial resection of breast tissue localized by means of a USG-guided needle was performed. The results of histopathological investigations of the surgical material were as follows: 43 patients (23.5%) were diagnosed with malignant tumors,

139 (76.5%) – with benign ones. Among the benign tumors, adenofibroma was predominant (72 patients – 52%), among the malignant ones – carcinoma infiltrans (35 patients – 81.4%). After ultimate histopathology results were obtained, 17 patients underwent BCT, 17 – Madden mastectomy, 2 – simple mastectomy, and 3 patients developed tumors in the other breast which was operated on by Madden mastectomy.

The following conclusions, based on the analysis of own material, were drawn:

1. USG-guided excision biopsy on case of ambiguous findings in breast USG is an effective method, both in diagnostics and in therapy.
2. In the OCCD material, 23.5% of patients with ambiguous USG findings were diagnosed histopathologically with malignant tumors, which confirms the necessity to perform excision biopsies.
3. Only good cooperation between the radiologist and the surgeon guarantees the success of this method.

Key words: Excision biopsy • USG of the breasts • malignant tumor • radiologist • oncologist surgeon

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Background

Availability of breast imaging techniques (ultrasonography, mammography) has led to an increased rate of detection of subclinical lesions [1, 2]. In most cases, such lesions require verification by microscopy. Fine needle aspiration biopsy has been the „golden standard" so far [3, 4]. At present, the indications for this type of biopsy have been limited significantly.

Large core needle biopsy, USG-guided mammotome biopsy, stereotaxic mammotome biopsy are becoming increasingly

popular [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15]. Excision biopsy (USG-guided anchor biopsy) is an established diagnostic, and in some cases also therapeutic, method. This method involves excision of a breast tissue fragment previously localized by a radiologist with a localization needle, together with a margin of normal tissue [16] and sending the material for histopathological investigation. The procedure is usually performed under local anesthesia. The method is employed in case of ambiguous breast USG findings.

Materials and methods

In 2003–2006 1068 excision biopsies (USG-, MGR-guided anchor biopsies) were performed in OCCD. In 182 patients (17%), USG-guided anchor biopsies were performed.

The youngest patient was 22 years old, the oldest 84, the mean age in the group was 53 years. The group consisted of 77 premenopausal patients (42%) and 105 (58%) postmenopausal ones. The family histories of 32 patients (17.5%) were positive. 169 (93%) had undergone mammography, including 115, for whom it was the first examination of that type in their life. The lesions were located most frequently in the upper lateral quadrant of the mammary gland (89 patients – 49%). In 5 patients, the lesions were of multifocal character. In 29 (16%), MGR revealed microcalcifications. All the patients underwent USG of the breasts.

Table 1 presents character of the lesions in USG.

Table 1. Character of the lesions in USG.

Character of the lesion in USG	Number of patients	%
HYPOECHOGENIC	122	68.5
HYPERECHOGENIC	1	0.5
ISOECHOGENIC	1	0.5
MIXED ECHOGENICITY	21	11.5
SIMPLE CYST	1	0.5
HIGH DENSITY CYST	3	1.5
CYST WITH INTERNAL HYPERPLASIA	5	2.5
MULTIPLE CYSTS	2	1.0
DUCTAL DILATATION	6	3.0
DUCTAL HYPERPLASIA	1	0.5
FA	15	8.0
CA	4	2.0

In 122 patients, accounting for 68.5% of the analyzed group, the lesions found in USG were hypoechogenic. Only in 4 cases (2%) the lesions shown by USG were suspicious of cancer. The mean lesion size was 13 mm (range 4–60 mm).

Results

All the patients underwent surgical treatment. Partial resection of breast tissue localized by means of a USG-guided needle was performed. The surgical material was sent for histopathological investigation. The results of histopathological investigations of the surgical material were as follows: 43 patients (23.5%) were diagnosed with malignant tumors, 139 (76.5%) – with benign ones.

Table 2 presents histological findings in benign tumors.

Table 2. Histological findings in benign tumors.

TYPES	Number of patients	%
FA	72	52.0
CYST	1	0.7
RADIAL SCAR	3	2.1
PAPILLOMA	10	7.2
FIBROCYST	15	10.8
MASTOPATHY	26	18.7
Non-ADH	7	6.4
ADH	2	1.4

Among the benign lesions, adenofibroma was predominant – 72 patients (52%).

Table 3 presents histological findings in malignant tumors.

Table 3. Histological findings in malignant tumors.

TYPES	Number of patients	%
CDIS	6	14.0
CLIS	2	4.6
Ca infiltrans:	35	81.4
– LOBULARE	7	20.0
– TUBULARE	2	6.0
– DUCTALE	26	74.0

Amonth the malignant tumors, carcinoma infiltrans was predominant – 35 patients (81.4%).

Table 4 presents the correlation of USG findings with 43 histopathologically malignant lesions

After ultimate histopathology results were obtained, 17 patients underwent BCT, 17 – Madden mastectomy, 2 – simple mastectomy, and 146 – tumor resection.

The results obtained in the group of 17 out of 43 patients with histologically malignant tumors (39.5%), who underwent Madden operations, were analyzed thoroughly. It was found that the reason for radical surgery in 7 patients was the lack of margins in histopathological investigation,

Table 4. Correlation of USG findings with 43 histopathologically malignant lesions.

Character of the lesion in USG	Number of patients	%	Ca+ 43 pts
HYPOECHOGENIC	122	68.5	35
HYPERECHOGENIC	1	0.5	1
ISOECHOGENIC	1	0.5	-
MIXED ECHOGENICITY	21	11.5	3
SIMPLE CYST	1	0.5	-
HIGH DENSITY CYST	3	1.5	-
CYST WITH INTERNAL HYPERPLASIA	5	2.5	-
MULTIPLE CYSTS	2	1.0	-
DUCTAL DILATATION	6	3.0	1
DUCTAL HYPERPLASIA	1	0.5	-
FA	15	8.0	-
CA	4	2.0	3

in 3 the lesion was localized centrally, in 2 it was larger than 3.5 cm in size, and 5 gave no consent for conservative surgery.

Discussion

Forty three patients, accounting for 23.5% of the analyzed group, were diagnosed histopathologically with malignant tumors. This justifies the claim that USG-guided excision biopsy method is effective in case of ambiguous USG findings. Good cooperation between the radiologist and the surgeon is indispensable in this procedure. This is another example illustrating the fact that the "golden years" of fine needle aspiration biopsy are coming to an end [3, 4].

Conclusions

The following conclusions, based on the analysis of own material, were drawn:

1. USG-guided excision biopsy on case of ambiguous findings in breast USG is an effective method, both in diagnostics and in therapy.
2. In the OCCD material, 23.5% of patients with ambiguous USG findings were diagnosed histopathologically with malignant tumors, which confirms the necessity to perform excision biopsies.
3. Only good cooperation between the radiologist and the surgeon guarantees the success of this method.

References:

1. Wesołowska E., Dziewulska E., Oknińska J. et al. Large core needle biopsy of nonpalpable breast lesions. Nowotwory 2000; 3: 241–246.
2. Carmon M., Rivkin L., Abu-Dalo R. et al. Increased mammographic screening and use of percutaneous image-guided core biopsy in non-palpable breast cancer: impact on surgical treatment. Isr. Med. Assoc. J. 2004; 6: 326–328.
3. Wesołowska E. Diagnostic value of mammography-guided fine needle aspiration biopsy in clinically asymptomatic breast cancer. Nowotwory 1996; 46:717–730.
4. Kerin M. J., Williams N. N., Cronin K. J. et al. Stereotactic cytology in a regional breast-screening programme. Br. J. Surg. 1994; 2: 221–222.
5. Burrell H. C., Pinder S. E., Wilson A. R. et al. The positive predictive value of mammographic signs: a review of 425 non-palpable breast lesions.Clin. Radiol. 1996; 4: 277–281.
6. Hanna W. C., Demyttenaere S. V., Ferri L. E. ret al. The use of stereotactic excisional biopsy in the management of invasive breast cancer. World J. Surg. 2005; 11: 1490–1494.
7. Oyama T., Koibuchi Y., McKee G. Core needle biopsy (CNB) as a diagnostic method for breast lesions: comparison with fine needle aspiration cytology (FNA). Breast Cancer 2004; 4: 339–342.
8. Mentrak Z., Jaśkiewicz J., Pietruszewicz J. et al. Stereotactic excisional biopsy in nonpalpable breast lesions using the Advanced Breast Biopsy Instrumentation (ABBI) system. Nowotwory 2000; 6: 603–605.
9. Adler O. B., Engel A. Mammographic wire-guided biopsies in non-palpable breast lesions. Eur. J. Radiol. 1989; 2: 108–111.
10. Rosenberg A. L., Schwartz G. F., Feig S. A. et al. Clinically occult breast lesions: localization and significance. Radiology 1987; 162: 167–170.
11. Chen A. M., Haffty B. G., Lee C. H. Local recurrence of breast cancer after breast conservation therapy in patients examined by means of stereotactic core-needle biopsy. Radiology 2002 ; 3: 707–712.
12. Marti W. R., Zuber M. Oertli D. et al. The Advanced Breast Biopsy Instrumentation (ABBI) for evaluation of mammographically suspicious, non-palpable findings of the breast: a reliable diagnosis with minor therapeutic potential. Swiss Surg. 2000; 3: 111–115.
13. Burbank F. Stereotactic breast biopsy of atypical ductal hyperplasia and ductal carcinoma In situ lesions: improved accuracy with directional, vacuum-assisted biopsy. Radiology 1997; 202: 843–847.
14. Liberman L., Dershaw D. D., Rosen P. P. Stereotaxic 14-gauge breast biopsy: how many core biopsy specimens are needed? Radiology 1994; 190: 223–225.
15. Kaye M. D., Vicinanza-Adami C. A., Sullivan M. L. Mammographic findings after stereotaxic biopsy of the breast performed with large-core needles.Radiology 1004; 192: 149–151.
16. de Ross M. A., Pijnappel R. M., Groote A. D. et al. Ductal carcinoma in situ presenting as microcalcifications: the effect of stereotactic large-core needle biopsy on surgical therapy. Breast 2004; 6: 461–467.